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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|------------------------|---------------------|------------------|
| 10/063,364      | 04/16/2002  | Robert F. Karlicek JR. | GLO 2 0077          | 4571             |

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| EXAMINER |
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TSIDULKO, MARK

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| ART UNIT | PAPER NUMBER |
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2875

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. **10/063,364**

Applicant(s)

KARLICEK, ROBERT F.

Examiner

Mark Tsidulko

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-13, 15 and 20-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10-13, 15, 20-23 and 25 is/are rejected.
- 7) ☒ Claim(s) 2, 9 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

The submission of amendment filed on 1/21/04 is acknowledged. At this point claims 1-3, 9, 10-13 have been amended, claims 4, 14, 16-19 have been canceled, new claims 20-25 have been added and the remaining claims left unchanged. Thus, claims 1-3, 5-13, 15, 20-25 are at issue in the instant application.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 10-13, 15, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyt (US 4,173,035) in view of (JP 2001-340195).

Referring to Claims 1, 12, 15, 22 Hoyt discloses (Figs.4, 6, 7) a structure including a first substrate [15A] and a second substrate [15B] having n LEDs [13] and edge connectors [26] disposed on an edge thereof providing electrical access to the LEDs. The substrates are planar and lie in a common plane when electrically interconnected.

Hoyt discloses the instant claimed invention except for rhombus shape of the substrates.

(JP 2001-340195) discloses a structure including substrates made of rhombus shape in order to obtain three dimensional structure.

Referring to Claims 3, 13, 23, 25 Hoyt discloses (Fig.6) the interconnecting elements [30] interposed between the edge connectors of the first and second substrates and having a plurality of

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electrical conductor members having two ports that electrically connect with the two connectors of the two adjacent sides.

Referring to Claims 10, 11 Hoyt discloses (Figs.1, 2) a terminating element [32] for supplying a power to the mounting structure to the first and second substrates.

Referring to Claim 21 it is understood, that the three dimensional structure of (JP 2001-340195) includes two dimensional array.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the substrates of Hoyt having a rhombus shape in order to obtain three dimensional structure.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyt (US 4,173,035) and (JP 2001-340195) in view of Roberts et al (US 2002/0149312).

Referring to Claim 5 Hoyt et al. discloses the instant claimed invention except for a thermally conductive layer.

Roberts et al. disclose a heat dissipating package having a thermally conductive layer (page4, [0057]). It is well known in the art, that the PCB has an electrical path used for electrical connection between LED and power supply, otherwise the light source mounted on PCB cannot work. Since in this case the PCB is an intermediate electrical connector between LED and the edge connector, it is understood, that the LED (optoelectronic component) is electrically connected to the edge connector.

Referring to Claim 6 Hoyt et al. discloses the instant claimed invention except for substrate having a lens.

Roberts et al. disclose an emitter device wherein the substrate has a lens (page 7, [0076]).

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Referring to Claim 7 it has been held, that mere duplication of the essential parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the substrate of Hoyt et al. made of thermally conductive material, as taught by Roberts et al. in order to remove the heat, and having the lens, as taught by Roberts et al. in order to increase diffusion and reflection of the light.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyt et al. and Roberts et al. as applied to claim 7 above, and further in view of Nakanishi et al. (US 5,539,767).

Roberts et al. disclose (Fig.8) a substrate [2601] having a depressions [2602] in which LEDs are arranged (page 8, [0084]), but Hoyt et al. do not disclose a circuit board having the holes for passing the light.

Nakanishi et al. disclose a circuit board having the holes for passing the light (Abstract).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the circuit board having the holes, as taught by Nakanishi et al. for the device of Hoyt et al. in order to pass the light generated from the light source.

#### *Allowable Subject Matter*

Claims 2, 9, 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

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Referring to Claim 2 the prior art of record fails to show a substrate having a rhombus shape corresponding to a primitive unit cell of a hexagon.

Referring to Claim 9 the prior art of record fails to show a structure including a third substrate being in the shape of rhombus, electrically interconnecting with the first and second substrates and being arranged to form a hexagonally shaped mounting structure.

Referring to Claim 24 the prior art of record fails to show a light emitting structure selectively configured into any of plurality of physical configurations.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Tsidulko whose telephone number is (571)272-2384. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

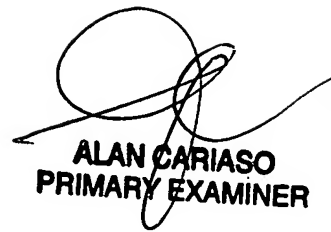
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M.T.

March 12, 2004



**ALAN CARIASO**  
**PRIMARY EXAMINER**